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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,308	02/06/2004	Amarildo J.C. Vieira	D03051	5430
43471	7590	03/08/2006	EXAMINER PHAN, HANH	
GENERAL INSTRUMENT CORPORATION DBA THE CONNECTED HOME SOLUTIONS BUSINESS OF MOTOROLA, INC. 101 TOURNAMENT DRIVE HORSHAM, PA 19044			ART UNIT 2638	PAPER NUMBER

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/774,308

Applicant(s)

VIEIRA ET AL.

Examiner

Hanh Phan

Art Unit

2638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 7-13, 19, 20 and 23-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-13, 19, 20 and 23-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This Office Action is responsive to the Amendment filed on 12/12/2005.
2. The indicated allowability of claims 17, 19, 23 and 24 is withdrawn in view of the newly discovered reference(s) to Cho et al (US Patent No. 6,335,819), Miyazaki et al (US Patent No. 6,532,091) and Kim et al (Pub. No.: US 2002/0075558). Rejections based on the newly cited reference(s) follow.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 7, 8, 10-13 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Cho et al (US Patent No. 6,335,819).

Regarding claim 7, referring to Figure 1, Cho discloses an all-optical wavelength converter circuit for transferring information of an information-bearing signal from a first wavelength to a second wavelength, the wavelength converter circuit comprising:

a polarization controller (i.e., polarization controllers 172 and 174, Fig. 1) for receiving an information-bearing signal having the first wavelength (wavelength  $\lambda_{data}$ , Fig. 1), and adjusting the polarization of the information-bearing signal; and

a laser diode (i.e., a probe laser 110, Fig. 1) in communication with the polarization controller (172 and 174, Fig. 1), the laser diode (110, Fig. 1) generating a converted information-bearing signal by transferring the information of the polarization-adjusted information-bearing signal from the first wavelength to the second wavelength (wavelength  $\lambda_{CW}$ , Fig. 1), wherein the laser diode (110, Fig. 1) is a pulsed laser diode (col. 7, lines 8-67).

Regarding claim 8, Cho discloses further comprising: at least one filter (i.e., filter 140, Fig. 1) for filtering the converted information-bearing signal to suppress or eliminate the first wavelength; and a routing device (i.e., optical circulator 130, Fig. 1) in communication with the polarization controller (172 and 174, Fig. 1) and the filter (140, Fig. 1), the routing device (130, Fig. 1) directing the information-bearing signal having the first wavelength to the polarization controller (172 and 174, Fig. 1), and directing the converted information-bearing signal to the filter (140, Fig. 1)(col. 9, lines 14-25).

Regarding claim 10, Cho further discloses an amplifier (150, Fig. 1) in communication with the filter for amplifying the filtered converted information-bearing signal.

Regarding claim 11, Cho further discloses the routing device (130, Fig. 1) is an optical circulator.

Regarding claim 12, Cho further discloses the routing device (130, Fig. 1) is an optical directional coupler.

Regarding claim 13, Cho further discloses a routing device (130, Fig. 1) in communication with the polarization controller (172 and 174, Fig. 1) , the routing device

(130) directing the information-bearing signal having the first wavelength ( $\lambda_{data}$ ) to the polarization controller (172, 174), and directing the converted information-bearing signal ( $\lambda_{CW}$ ) to the filter (140); and an amplifier (150) in communication with the routing device (130) for amplifying the converted information-bearing signal.

Regarding claim 20, Cho further discloses the laser diode (110, Fig. 1) transmits the converted information-bearing signal to the polarization controller (172, 174) which adjusts the polarization of the converted information-bearing signal.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cho et al (US Patent No. 6,335,819) in view of Miyazaki et al (US Patent No. 6,532,091).

Regarding claim 9, Cho teaches all the aspects of the claimed invention except fails to teach an amplifier in communication with the routing device for amplifying the information-bearing signal having a first wavelength. However, Miyazaki in US Patent No. 6,532,091 teaches an amplifier (212, Fig. 11) in communication with the routing device (optical circulator 216, Fig. 11) for amplifying the information-bearing signal having a first wavelength (col. 14, lines 56-67, col. 15, lines 1-67 and col. 16, lines 1-67). Therefore, it would have been obvious to one having skill in the art at the time the

invention was made to incorporate the amplifier in communication with the routing device for amplifying the information-bearing signal having a first wavelength as taught by Miyazaki in the system of Cho. One of ordinary skill in the art would have been motivated to do this since Miyazaki suggests in column 14, lines 56-67, col. 15, lines 1-67 and col. 16, lines 1-67 that using such the amplifier has advantage of allowing increasing the power level of signal to a desired level.

7. Claims 19, 25 and 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho et al (US Patent No. 6,335,819) in view of Kim et al (Pub. No.: US 2002/0075558).

Regarding claim 19, Cho teaches all the aspects of the claimed invention except fails to teach a fiber laser diode. However, Kim an optical wavelength converter using a fiber laser (Fig.1, page 1, paragraph [0010] ). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the fiber laser as taught by Kim in the system of Cho. One of ordinary skill in the art would have been motivated to do this since Kim suggests in page 1, paragraph [0010] that using such the fiber laser has advantage of allowing reacting conversion speed is as rapidly as sub-pico second and wavelength conversion is possible in a small in put strength.

Regarding claim 25, Cho discloses further comprising: at least one filter (i.e., filter 140, Fig. 1) for filtering the converted information-bearing signal to suppress or eliminate the first wavelength; and a routing device (i.e., optical circulator 130, Fig. 1) in communication with the polarization controller (172 and 174, Fig. 1) and the filter (140,

Fig. 1), the routing device (130, Fig. 1) directing the information-bearing signal having the first wavelength to the polarization controller (172 and 174, Fig. 1), and directing the converted information-bearing signal to the filter (140, Fig. 1)(col. 9, lines 14-25).

Regarding claim 27, Cho further discloses an amplifier (150, Fig. 1) in communication with the filter for amplifying the filtered converted information-bearing signal.

Regarding claim 28, Cho further discloses the routing device (130, Fig. 1) is an optical circulator.

Regarding claim 29, Cho further discloses the routing device (130, Fig. 1) is an optical directional coupler.

Regarding claim 30, Cho further discloses a routing device (130, Fig. 1) in communication with the polarization controller (172 and 174, Fig. 1) , the routing device (130) directing the information-bearing signal having the first wavelength ( $\lambda_{data}$ ) to the polarization controller (172, 174), and directing the converted information-bearing signal ( $\lambda_{CW}$ ) to the filter (140); and an amplifier (150) in communication with the routing device (130) for amplifying the converted information-bearing signal.

Regarding claim 31, Cho further discloses the laser diode (110, Fig. 1) transmits the converted information-bearing signal to the polarization controller (172, 174) which adjusts the polarization of the converted information-bearing signal.

8. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazaki et al (US Patent No. 6,532,091) in view of Cho et al (US Patent No. 6,335,819).

Regarding claim 23, referring to Figures 1 and 2, Miyazaki discloses an optical wavelength switch comprising:

an input for receiving at least a first information-bearing signal having a first wavelength and a second information-bearing signal having a second wavelength (Fig. 1, col. 8, lines 65-67 and col. 9, lines 1-20); and

at least two all-optical wavelength converter circuits (i.e., all-light signal generators 66a-1 to 66a-M, Fig. 2, col. 8, lines 65-67 and col. 9, lines 1-20).

Miyazaki differs from claim 23 in that he fails to specifically teach a wavelength converter circuit including a laser diode, the laser diode of the wavelength converter circuit being in communication with one information-bearing signal and wherein the laser diode in the wavelength converter circuit transfers information of the information-bearing signal to another wavelength using cross-gain modulation. However, Cho in US Patent No. 6,335,819 teaches a wavelength converter circuit including a laser diode, the laser diode of the wavelength converter circuit being in communication with one information-bearing signal and wherein the laser diode in the wavelength converter circuit transfers information of the information-bearing signal to another wavelength using cross-gain modulation (Fig. 1, col. 7, lines 8-67). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the wavelength converter circuit as taught by Cho in the system of Miyazaki. One of



ordinary skill in the art would have been motivated to do this since Cho suggests in column 7, lines 8-67 that using such the wavelength converter circuit has advantage of allowing the signal is re-shaped and re-amplified, reducing the error signal, and increasing the signal to noise ratio.

Regarding claim 24, the combination of Miyazaki and Cho teaches the all optical wavelength converter circuits include a polarization controller which adjusts the polarization of the information-bearing signal in communication with the laser diode prior to the laser diode transferring the information of the respective information-bearing signal to another wavelength (see Fig. 1 of Cho).

9. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cho et al (US Patent No. 6,335,819) in view of Kim et al (Pub. No.: US 2002/0075558) and further in view of Miyazaki et al (US Patent No. 6,532,091).

Regarding claim 26, Cho as modified by Kim teaches all the aspects of the claimed invention except fails to teach an amplifier in communication with the routing device for amplifying the information-bearing signal having a first wavelength. However, Miyazaki in US Patent No. 6,532,091 teaches an amplifier (212, Fig. 11) in communication with the routing device (optical circulator 216, Fig. 11) for amplifying the information-bearing signal having a first wavelength (col. 14, lines 56-67, col. 15, lines 1-67 and col. 16, lines 1-67). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the amplifier in communication with the routing device for amplifying the information-bearing signal

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having a first wavelength as taught by Miyazaki in the system of Cho modified by Kim. One of ordinary skill in the art would have been motivated to do this since Miyazaki suggests in column 14, lines 56-67, col. 15, lines 1-67 and col. 16, lines 1-67 that using such the amplifier has advantage of allowing increasing the power level of signal to a desired level.

### ***Response to Arguments***

10. Applicant's arguments with respect to claims 7-13, 19, 20 and 23-31 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

  
**HANH PHAN**  
**PRIMARY EXAMINER**